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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,875

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Laurent Allidieres

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AIR LIQUIDE

Intellectual Property

2700 POST OAK BOULEVARD, SUITE 1800

HOUSTON, TX 77056

EXAMINER

BOBISH, CHRISTOPHER S

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

05/28/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,875	Applicant(s) ALLIDIERES, LAURENT	
	Examiner CHRISTOPHER BOBISH	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The amendments filed on 02/03/2009 under 37 CFR 1.131 have been considered but are ineffective to overcome the Brigham and Drube references.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brigham (US Patent No. 4,662,181) in view of Drube et al (US PG PUB No. 2003/0126867).

Brigham teaches:

From claim 11:

a cryogenic pumping system, **FIG. 2**, comprising a cryogenic fluid tank, **FIG. 2 (10) C. 8 Line 38**, a cryogenic pump having an inlet pressure drop, **FIG. 2 (28,**

Art Unit: 3746

30) C. 8 Lines 32-38, and a suction line, FIG. 2 (16, 26), connecting the tank (10) to the pump (30);

Brigham controls pressure pump inlet pressure by recirculating pumped fluid into a supply tank and venting the tank via a valve; Brigham does not teach a means for controlling both a pressurizing and depressurizing means, but Drube does.

Drube teaches:

From claim 11:

a pressurizing, **FIG. 1A (26)**, and depressurizing means **FIG. 1A (62)**, being controlled, **Page 2 ¶ 32**, to change a pressure in a tank, **FIG. 1A (10)**; **(also see page 3 paragraph 44 of Drube which teaches further pressurizing the fluid of the tank via an outlet 98, examiner believes this would be accomplished by a pump as taught by Brigham in this combination);**

It would have been obvious to one having ordinary skill in the art of pumping systems at the time of the invention to combine the pressure monitoring system taught by Drube with the pumping system taught by Brigham in order to satisfy the pressure needs of a pump. C. 1 Lines 23-31 of Brigham provide motivation.

Art Unit: 3746

Brigham and Drube teach and disclose of the pumping system of claim 11.

Brigham further teaches:

limitations from claims 16, 17 and 18, wherein a tank **(10)** is filled with a low density fluid and its vapor, such as hydrogen or helium, **C. 6 Lines 1-8;**

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brigham (US Patent No. 4,662,181) in view of Drube et al (US PG PUB No. 2003/0126867) as applied to claim 11 above, and in further view of Horak (US Patent No. 3,960,295).

Brigham and Drube teach and disclose of the pumping system of claim 11.

Neither Brigham nor Drube teach a system having two tanks, but Horak does.

Horak teaches:

limitations from claim 15, a fluid system having two tanks, wherein when one tank is being used, the other is being filled, **C. 2 Lines 48-54;**

It would have been obvious to one having ordinary skill in the art of pumping systems at the time of the invention to provide the fluid system taught by Brigham as modified by Drube with a two tank system as taught by Horak in order to provide continuous pumping, reducing loss of production time, C. 1 Lines 39-41;

Brigham, Drube and Horak teach and disclose of the pumping system of claim 11.

Brigham further teaches:

limitations from claim 21, wherein a tank **(10)** is filled with a low density fluid and its vapor, such as hydrogen or helium, **C. 6 Lines 1-8;**

Claims 12, 13, 14, 19-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brigham (US Patent No. 4,662,181) in view of Drube et al (US PG PUB No. 2003/0126867) as applied to claims 11, 16, 17 and 18 above, and in further view of Boissin (EP 0010464 A).

Drube teaches controlling the pressure of a tank **(10)** based on signals from a pressure sensor, **Page 2 ¶ 32**.

Neither Brigham nor Drube teach a temperature sensor in the suction line, but Boissin does.

Boissin teaches:

limitations from claim 12 and 14, temperature, **FIG. 1 (22) Page 4 bottom paragraph**, and pressure sensors, **FIG. 1 (21) Page 4 bottom paragraph**, in a suction line, **FIG. 1 (3) Page 4 bottom paragraph**; wherein the pressure and temperature values are use to determine a NPSH, **via device 20, Page 4 bottom paragraph, ;**

It would have been obvious to one having ordinary skill in the art of pumping systems at the time of the invention to use the pressure calculating method taught by Boissin with the pumping and pressure regulating system taught by Brigham and modified by Drube in order to more accurately supply a pump with fluid, thereby avoiding cavitation and pump damage.

Brigham, Drube and Boissin teach and disclose of the pump system in claims 11 and 12.

Drube further teaches:

limitations from claim 13, wherein said pressurization and depressurization control means comprise a tank pressurizing valve **(26)** and a tank depressurizing valve **(62)**;

limitations from claims 19-20, wherein the tank **(10)** is pressurized using a pressurized gas source **(Page 3 paragraph 34)** that is part of the fluid pressurized by the pump **(the fluid 14 in the tank 10 is the same fluid that is**

Art Unit: 3746

to be pressurized through valve and line 96, 98; part of this fluid also runs through the heat exchangers to pressurize the tank);

With respect to claim 22:

the limitations of claim 22 are satisfied in the rejections of claim 11, 12, 15 and 16.

Response to Arguments

Applicant's arguments filed 02/03/2009 have been fully considered but they are not persuasive.

Applicant argues that the combination of the Brigham and Drube references does not produce a system that controls the pressure in a suction line. However the examiner believes that by controlling the pressure in a tank that supplies fluid directly to a suction line of a pump, the pressure in the suction line is also controlled. As to the measurement of temperature and pressure within the suction line rather than the tank itself, the Boissin reference is provided to teach such an arrangement.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER BOBISH whose telephone number is (571)270-5289. The examiner can normally be reached on Monday through Thursday, 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571)272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3746

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Bobish/
Examiner, Art Unit 3746

/Devon C Kramer/
Supervisory Patent Examiner, Art
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/C. B./
Examiner, Art Unit 3746